

Brief 5: Evaluating Policy Impact

This brief discusses how to implement Step 3 of the Framework for the third of the three main phases of policy evaluation: policy impact evaluation.

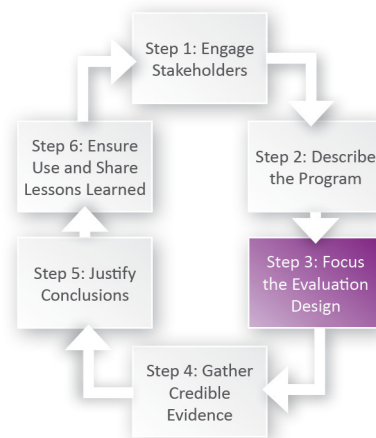
Purposes of Policy Impact Evaluation

Policy impact evaluation can have multiple aims or purposes, including:

- Demonstrating the impact of the policy, by measuring changes in short-term, intermediate and long-term outcomes.
- Determining whether changes in outcomes can be attributed to the policy.
- Comparing relative impacts of policies with different components.
- Identifying the relative cost-benefit or cost-effectiveness of a policy.

The focus of the evaluation may be a number of different areas, including the following:

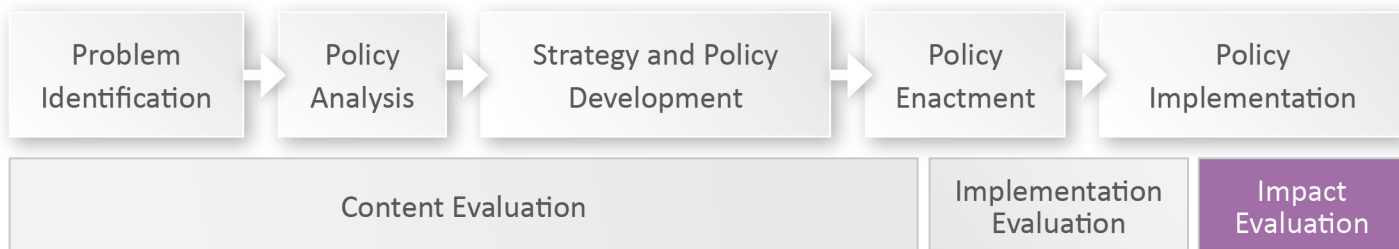
- Short-term, intermediate, and long-term outcomes and impacts.
 - Outcomes are short-term and intermediate changes in target audience behavior, awareness, attitudes, or knowledge.
 - Impacts are long-term changes in indicators.
 - Indicators are specific, observable, measurable characteristics of changes that demonstrate progress toward outcome or impact.
- Outcomes and impacts in comparison communities.
- Costs of implementing the policy.
- Cost savings resulting from policy implementation.



Policy Impact Evaluation: Did the Policy Produce the Intended Outcomes and Impacts?

Policy impact evaluation examines changes in key indicators that have occurred since the implementation of a policy and the extent to which changes can be attributed to the policy. Policy impact evaluation’s relation to policy development phases is illustrated in **Figure 1**.

Figure 1. Illustrates where in the policy process impact evaluation is focused.



Examples of outcome and impact indicators are presented in **Figure 2**.

Sample Impact Evaluation Questions

Once the purpose and focus of the evaluation are determined, you should identify specific evaluation questions. The evaluation questions you choose will guide your selection of an appropriate evaluation design. The following are some sample policy impact evaluation questions.

- Was there a change in the outcomes and impacts of interest?
- Did the policy contribute to a change in the outcomes and impacts of interest?
- Were there any unintended consequences of the policy?
- Did contextual factors influence the level of impact?
- What was the economic impact of the policy (cost-effectiveness or cost benefit)?

Evaluation Design Considerations

Evaluating a Change in Outcomes, and Impacts

When the evaluation question focuses on identifying changes in the indicators, regardless of whether or not the changes were necessarily a result of the policy itself, the team can use non-experimental or descriptive designs. However, be sure to represent accurately what the results of this analysis demonstrate. Non-experimental designs are unable to clearly link the impacts to the policy because they are unable to rule out alternative explanations for the impacts.¹ These types of designs are most appropriate when it is impossible or impractical to compare changes over time or to use a comparison group. Two potential non-experimental designs for impact evaluation are cross-sectional and case study.

Establishing a Link Between a Policy and Changes in Outcomes and Impacts

A randomized experimental design is sometimes considered the gold standard for conducting an impact evaluation because it produces the strongest evidence that a project, program, or policy contributed to changes in behavior or other outcomes.^{3,4,5} However, when you are evaluating the impact of a policy on a population, randomization may be unethical or impossible, not to mention costly or time-consuming. Quasi-experimental designs can be used to evaluate changes in indicators over time or compared to a group not affected by the policy. Refer to **Appendix O** for further description of these methods.

Evaluating Impact of Product Design Changes

To evaluate a voluntary performance standard for infant walkers that suggested that walkers be designed to be too wide for a standard doorway or incorporate a braking mechanism, Shields and Smith found a 75% decrease in infant-walker-related injuries by conducting a retrospective pre-post design that examined injury rates before and after the standard was established. This decrease was demonstrated through a retrospective analysis of data from the National Electronic Injury Surveillance System maintained by the U.S. Consumer Product Safety Commission.²

- 1 Her Majesty's Treasury. (2011). *The magenta book: Guidance for evaluation*. London, UK: Author. Retrieved from http://www.hm-treasury.gov.uk/data_magentabook_index.htm
- 2 Shields, B. J., & Smith, G. A. (2006). Success in the prevention of infant walker-related injuries: An analysis of national data, 1990–2001. *Pediatrics*, *117*, e452–e459.
- 3 W. K. Kellogg Foundation. (1998; rev. 2004). *Evaluation handbook*. Battle Creek, MI: Author. Retrieved from <http://www.wkkf.org/knowledge-center/resources/2010/W-K-Kellogg-Foundation-Evaluation-Handbook.aspx>
- 4 Patton, M. Q. (2011). *Essentials of utilization-focused evaluation*. Saint Paul, MN: Sage.
- 5 Brownson, R. C., Royer, C., Ewing, R., & McBride, T. D. (2006). Researchers and policy makers: Travelers in parallel universes. *American Journal of Preventive Medicine*, *30*, 164–172.
- 6 Markowitz, S., Nesson, E., Poe-Yamagata, E., Florence, C., Roberts, T., & Link, S. B. (2011, June). *Estimating the relationship between alcohol policies and youth violence*. Retrieved from <http://etnesson.iweb.bsu.edu/Papers/Youth%20Violence%20Paper%20October%202011.pdf>

A number of factors can make it easier or harder to make the case for a causal relationship between the policy and the observed changes in outcomes. These factors include the following²:

- Nature of the relationship between the policy and the impacts.
- Expected magnitude of change in impact.
- Expected length of time to see evidence of the policy effects.
- Nature and extent of external influences on impact.
- Availability of data.
- Extent of implementation (availability of natural comparison groups).

Comparison Groups

In many cases, you may be able only to assert some contribution of the policy to the outcomes and impacts. Using comparison groups is one method that can increase your confidence that the policy is responsible for the change in indicators. A comparison between groups whose members have not been randomly assigned is known as non-equivalent comparison design. Although groups similar to the community or group being affected by the policy may be selected, the groups are not equivalent, regardless of how similar they may appear. Some additional steps may be required during analyses and interpretation to demonstrate the appropriateness of the comparison group.⁷ If you are unable to compare a group affected by a policy with a group not affected by a policy, you may be able to make comparisons between the groups that have been affected by a policy. For example, an evaluation may compare the impact of a universal school-based violence prevention policy between different schools, different grade levels, or different levels of implementation.

Evaluation of Cost Versus Benefit

Economic evaluation methods compare the costs of the policy with the resulting benefits. These methods are used in conjunction with the designs described above because they are dependent upon understanding the amount and types of changes that occurred as a result of the program. Economic evaluations attempt to place a value on these changes and then compare this value with the cost of implementing the program. Two types of economic evaluations are cost-benefit and cost-effectiveness studies. Cost-benefit studies estimate and compare the cost of a policy with the value of the benefit of the policy. Cost-effectiveness studies examine the cost of implementing policy in relation to the resulting positive outcomes or impacts, often in comparison

Modeling the Impact of Alcohol Control Policies on Youth Violence

Using data from the Youth Risk Behavioral Surveillance Survey as well as area-level alcohol policy information, Markowitz and colleagues used statistical modeling to examine the impact of various alcohol control policies on measures of youth violence and drinking. They obtained data on 18 different alcohol control policy variables from the Alcohol Policy Information System (available from the National Institute on Alcohol Abuse and Alcoholism) and also contacted state officials directly. Merging this information with violence data based on respondent residence and year of survey allowed for an analysis of the relationships between the different policies and youth violence. The analyses provided evidence of a negative relationship between alcohol prices and youth violence.⁶

7 CDC, Office of the Associate Director for Program. (2012, September). *A framework for program evaluation*. Retrieved from <http://www.cdc.gov/eval/framework/index.htm>

8 Faul, M., Wald, M. M., Rutland-Brown, W., Sullivent, E. E., & Sattin, R. W. (2007). Using a cost-benefit analysis to estimate outcomes of a clinical treatment guideline: Testing the Brain Trauma Foundation guidelines for the treatment of severe traumatic brain injury. *Journal of Trauma*, 63, 1271–1278.

to alternative policies or interventions. It is important to consider a wide range of potential costs and benefits related to the policy in order to account for ripple effects when evaluating cost and benefits. Economic analyses can be extremely complicated and should be thoroughly planned with input from an economist, econometrician, or quantitative policy research expert during the planning phase of the evaluation.¹

General Measurement Considerations

Impact evaluations typically rely on quantitative data. Some evaluation designs require collection of population-level data at multiple times over a long period. Surveillance data is often a cost-effective source of data.

Estimating the Cost-Benefit of a Policy

To examine the cost savings associated with adopting the Brain Trauma Foundation (BTF) guidelines for treatment of severe traumatic brain injury, Faul and colleagues used surveillance systems combined with national surveys. They estimated the lifetime costs of 80% adherence to the guidelines compared with the 33% estimated adherence. Using a decision analysis model, coupled with previous research and available surveillance and survey data, they estimated savings of more than \$300 million in medical costs and rehabilitation costs if the BTF guidelines were followed at 80% adherence. Faul’s team also estimated that more than 3,000 additional lives would be saved. This example demonstrates how previous research and available surveillance data can estimate the cost benefits of a policy.⁸

Figure 2: Examples of Outcome and Impact Indicators		
Short-Term Outcomes	Intermediate Outcomes	Long-Term Impacts
Awareness of seat belt law	Seat belt use	Injury rates
Attitudes toward violence	Violent behavior	Injuries from violence
Awareness of Brain Trauma Foundation guidelines	Adherence to treatment guidelines	Injury severity

In selecting data collection points, consider the planned and actual roll-out dates of the policy. Make sure data is being collected at time periods that match the evaluation design (before and after implementation). If you are using a comparison group, make sure you have access to data on both the groups.

Unintended Consequences

Consider potential unintended consequences that may occur as a result of the policy implementation. Rely on previous research and evaluations and the experience of stakeholders to brainstorm potential unintended consequences. Some unintended consequences may be uncovered during the course of policy implementation. Some examples of potential unintended consequences include:

- Increases in the arrest of intimate partner violence victims as a result of a new arrest policy.
- Increases in illegal firearm sales as a result of a firearm licensing policy.
- Increases in child injuries due to airbag deployment as a result of new regulatory requirements.
- Issues related to access to health care as the result of policies that increase reporting of injuries.

Potential Policy Impact Evaluation Challenges and Solutions	
Challenges	Solutions
External and contextual factors such as economic conditions or public awareness	<ul style="list-style-type: none"> Measure contextual factors to the extent possible. Explore the use of difference in difference analyses which examine the difference in the target group while accounting for differences in comparison communities.
Length of time required to expect long-term impacts	<ul style="list-style-type: none"> Use an evaluation plan that measures short-term and intermediate outcomes that logically link to long-term outcomes.
Lack of access to appropriate data	<ul style="list-style-type: none"> Identify available pre-existing datasets and explore the possibility of data linkage to increase analysis possibilities (see Brief 6).

Action Steps

- Identify any resources for planning and implementing an impact evaluation.
- Identify evaluation questions and identify the most appropriate design given available resources and expertise.
- Articulate short-term and intermediate outcomes as well as long-term impacts for a particular policy.
- Identify data collected in an existing surveillance or administrative system to use for an evaluation.

Additional Resources

The Magenta Book: Guidance for Evaluation (Her Majesty's Treasury). Provides general and technical guidance on policy evaluation. Available at http://www.hm-treasury.gov.uk/data_magentabook_index.htm

Policy Evaluation Webinar Series (National Collaborative on Childhood Obesity Research). Available at <http://www.nccor.org/resources/nccor/webinars.php#f>